

UNITED STATES PATENT AND TRADEMARK OFFICE

Inventor(s): Roy Zeighami, et al.

Confirmation No.: 2132

Application No.: 10/687,382

Examiner:

Filing Date: Oct. 16, 2003

Group Art Unit: 2835

Title: METHOD OF COOLING SEMICONDUCTOR DIE USING MICROCHANNEL
THERMOSYPHON

Mail Stop Amendment
Commissioner for Patents
PO Box 1450
Alexandria, VA 22313-1450

TRANSMITTAL LETTER FOR RESPONSE/AMENDMENT

Sir:

Transmitted herewith is/are the following in the above-identified application:

- (X) Response/Amendment () Petition to extend time to respond
() New fee as calculated below () Supplemental Declaration
() No additional fee
(X) Other: Return Post Cards (fee \$)

| CLAIMS AS AMENDED BY OTHER THAN A SMALL ENTITY | | | | | | |
|--|--|------------------------|--|-------------------------|-------------|---------------------------|
| (1) FOR | (2) CLAIMS REMAINING AFTER AMENDMENT | (3) NUMBER EXTRA | (4) HIGHEST NUMBER PREVIOUSLY PAID FOR | (5) PRESENT EXTRA | (6) RATE | (7) ADDITIONAL FEES |
| TOTAL CLAIMS | 6 | MINUS | 20 | = 0 | X \$18 | \$ 0 |
| INDEP. CLAIMS | 1 | MINUS | 3 | = 0 | X \$86 | \$ 0 |
| [] FIRST PRESENTATION OF A MULTIPLE DEPENDENT CLAIM | | | | | + \$290 | \$ 0 |
| EXTENSION FEE | 1ST MONTH \$110.00 | 2ND MONTH \$420.00 | 3RD MONTH \$950.00 | 4TH MONTH \$1480.00 | | \$ 0 |
| OTHER FEES | | | | | | \$ |
| TOTAL ADDITIONAL FEE FOR THIS AMENDMENT | | | | | | \$ 0 |

Charge \$ 0 to Deposit Account 08-2025. At any time during the pendency of this application, please charge any fees required or credit any overpayment to Deposit Account 08-2025 pursuant to 37 CFR 1.25. Additionally please charge any fees to Deposit Account 08-2025 under 37 CFR 1.16 through 1.21 inclusive, and any other sections in Title 37 of the Code of Federal Regulations that may regulate fees. A duplicate copy of this sheet is enclosed.

"Express Mail" label no. E1927873678US

Date of Deposit July 26, 2004

I hereby certify that this is being deposited with the United States Postal Service "Express Mail Post Office to Addressee" service under 37 CFR 1.10 on the date indicated above and is addressed to: Commissioner for Patents, Alexandria, VA 22313-1450.

By Melissa R. Smith

Typed Name: Melissa Smith

Respectfully submitted,

Roy Zeighami, et al.

By Peter C. Knops

Peter C. Knops

Attorney/Agent for Applicant(s)

Reg. No. 37,659

Date: July 26, 2004

IN THE CLAIMS

1. (Original) A method of cooling a semiconductor die, comprising the steps of:

flowing fluid through micro-channels formed into the die;
communicating fluid from the die to a condenser arranged above the die;
cooling fluid at the condenser, and
communicating fluid from the condenser to the micro-channels.

2. (Original) A method of claim 1, the step of flowing comprising flowing fluid through the micro-channels bounded, at least in part, by a semiconductor element coupled with the die.

3. (Original) A method of claim 2, the semiconductor element comprising one of silicon and a glass plate.

4. (Original) A method of claim 1, further comprising the step of shaping the micro-channels for preferential fluid flow along the micro-channels.

5. (Original) A method of claim 1, the steps of communicating comprising utilizing headers coupled with the micro-channels.

6. (Currently Amended) A method of claim 1, the step of communicating fluid from the condenser to the micro-channels comprising utilizing gravity to force the fluid to the [condenser]die.